

AMENDMENTS TO THE CLAIMS

Also, in the Application, please amend the set of claims 1-35 as hereinafter indicated.

1. (Currently Amended) A method of controlling a vehicle with a 4x4 driving system, said method comprising the steps of:

determining a potential rollover condition from dynamic conditions sensed onboard said vehicle; and

transferring driving torque both through an electronically-controlled center differential or an electronically-controlled transfer case and to the front wheels of said vehicle so as to prevent rollover of said vehicle.

2. (Currently Amended) A method as recited in claim 1, wherein the step of transferring said driving torque is performed when ~~a vehicle~~ the speed of said vehicle is determined to be below a predetermined low speed threshold.

3. (Currently Amended) A method as recited in claim 1, wherein the step of transferring said driving torque is performed when a steering wheel angle of said vehicle is determined to be above a steering-wheel predetermined steering-wheel angle threshold.

4. (Currently Amended) A method as recited in claim 1, wherein the step of transferring said driving torque is performed when a throttle opening is determined to be below a ~~throttle-opening~~ predetermined throttle-opening threshold.

5. (Currently Amended) A method as recited in claim 1, wherein the step of transferring said driving torque is performed when ~~a vehicle~~ both the speed of said vehicle is determined to be below a low-speed predetermined low-speed threshold and ~~[[when]]~~ a throttle opening is determined to be below a ~~throttle-opening~~ predetermined throttle-opening threshold.

6. (Currently Amended) A method as recited in claim 1, wherein the step of determining ~~[[a]]~~ said potential rollover condition is performed in response to a ~~roll-rate~~ roll-rate signal.

7. (Currently Amended) A method of controlling a vehicle with a 4x4 driving system, said method comprising the steps of:

generating a rollover signal in response to a potential rollover situation as determined from dynamic conditions sensed onboard said vehicle;

increasing a torque in a front outside wheel of said vehicle through a differential in response to ~~[[the]]~~ said rollover signal; and

braking a rear outside wheel of said vehicle in response to ~~[[the]]~~ said rollover signal.

8. (Currently Amended) A method as recited in claim 7, wherein the step of increasing said torque is performed when a throttle opening is determined to be above a ~~throttle opening predetermined throttle-opening~~ threshold.

9. (Currently Amended) A method as recited in claim 7, wherein the step of increasing ~~[[the]]~~ said torque comprises is accomplished by increasing ~~[[the]]~~ said torque to a full torque application level.

10. (Currently Amended) A method as recited in claim 7, wherein said method further comprising comprises the step of reducing oversteer yawing in response to said increasing ~~[[the]]~~ said torque in said front outside wheel and also said braking said rear outside wheel.

11. (Currently Amended) A method as recited in claim 7, wherein said method further comprising comprises the step of braking a front inside wheel of said vehicle.

12. (Currently Amended) A method as recited in claim 11, wherein the steps of increasing said torque in said front outside wheel and braking both said rear outside wheel and said front inside wheel are performed when a throttle opening is determined to be above a ~~throttle-opening predetermined throttle-opening~~ threshold.

13. (Currently Amended) A method as recited in claim 7, wherein said method further comprising comprises the steps of determining a wheel lift condition~~[[,]]~~ and ~~wherein~~ braking a front inside wheel of said vehicle ~~is performed~~ during the determination of ~~[[a]]~~ said wheel lift condition.

14. (Currently Amended) A method as recited in claim 7, wherein the step of increasing ~~[[the]]~~ said torque is performed using a ~~limited-slip~~ limited-slip differential or a viscous coupling.

15. (Currently Amended) A method as recited in claim 7, wherein the step of increasing ~~[[the]]~~ said torque is performed using a Torsen differential.

16. (Currently Amended) A method of controlling a vehicle having an active differential, said method comprising the steps of:

determining a rollover condition from dynamic conditions sensed onboard said vehicle;
in response to ~~[[the]]~~ said rollover condition, controllingly disengaging an inside wheel of said vehicle from an outside wheel of said vehicle with ~~[[the]]~~ said active differential; and
thereafter, determining a wheel lift condition of ~~[[an]]~~ said inside wheel.

17. (Currently Amended) A method as recited in claim 16, wherein said method further comprising comprises the step of applying engine torque to ~~[[the]]~~ said outside wheel so as to prevent rollover of said vehicle.

18. (Currently Amended) A method as recited in claim 16, wherein the step of determining ~~[[a]]~~ said wheel lift condition ~~comprises~~ is accomplished by actively determining wheel lift.

19. (Currently Amended) A method as recited in claim 18, wherein actively determining said wheel lift ~~comprises determining wheel lift~~ is accomplished by applying a change in torque to ~~[[the]]~~ said inside wheel and also monitoring a change in speed of ~~[[the]]~~ said wheel.

20. (Currently Amended) A method of controlling a vehicle having a first wheel, a second wheel, and an active differential, said method comprising the steps of:

during a potential rollover event or stability control event, determining a slip condition of [[a]] said first wheel of [[the]] said vehicle;

controllingly reducing torque to [[the]] said first wheel in response to [[the]] said slip condition using [[the]] said active differential; and

controllingly increasing torque to [[the]] said second wheel in response to [[the]] said slip condition using [[the]] said active differential.

21. (Currently Amended) A method as recited in claim 20, wherein ~~reducing torque to the first wheel and increasing torque to the second wheel are performed with~~ said active differential is an active center differential.

22. (Currently Amended) A method as recited in claim 20, wherein ~~reducing torque to the first wheel and increasing torque to the second wheel are performed with~~ said active differential is an active axle differential.

23. (Currently Amended) A method as recited in claim 20, wherein determining [[a]] said slip condition comprises determining a slip condition is accomplished in a traction control system (TCS).

24. (Currently Amended) A method of controlling a vehicle having an active differential, said method comprising the steps of:

determining a rollover condition from dynamic conditions sensed onboard said vehicle;

in response to [[the]] said rollover condition, controllingly disengaging ~~an outside a~~ front outside wheel from an inside wheel of said vehicle with [[the]] said active differential;

applying a braking torque to ~~the outside~~ said front outside wheel; and

applying powertrain torque to ~~the outside a~~ rear outside wheel of said vehicle so as to counter a deceleration caused by the braking of [[the]] said front outside wheel.

25. (Currently Amended) A method as recited in claim 24, wherein the step of applying powertrain torque comprises applying powertrain torque to the outside said rear outside wheel is accomplished so as to balance a weight transfer from front to rear of said vehicle.

26. (Currently Amended) A method of controlling a vehicle having an active differential, said method comprising the steps of:

determining a possible rollover condition from dynamic conditions sensed onboard said vehicle; and

in response to [[the]] said possible rollover condition, using [[the]] said active differential distributing to distribute torque between [[the]] a front right wheel, a front left wheel, a rear left wheel, and [[the]] a rear right wheel of said vehicle so as to help prevent actual rollover.

27. (Currently Amended) A method as recited in claim [[23]] 26, wherein distributing torque comprises is at least partially accomplished by applying positive torque to the outside a front outside wheel of said vehicle.

28. (Currently Amended) A method as recited in claim [[23]] 26, wherein distributing torque comprises reducing understeer is at least partially accomplished by applying positive torque to the outside a front outside wheel of said vehicle so as to reduce understeer.

29. (Currently Amended) A roll stability control system for a vehicle having [[a]] front wheel wheels and rear wheels, said roll stability control system comprising:

a differential;

a rollover sensor generating operable to generate a rollover signal; and

a controller coupled to [[the]] said rollover sensor and [[the]] said differential[.];

wherein [[the]] said controller controlling a is operable to control said differential limiting so as to limit vehicle powertrain torque applied to [[the]] said front wheels [[to]] and thereby prevent rollover of said vehicle.

30. (Currently Amended) A roll stability control system for a vehicle as recited in claim 29, wherein [[the]] said differential comprises is an active differential.

31. (Currently Amended) A roll stability control system for a vehicle as recited in claim 29, wherein ~~[[the]]~~ said differential comprises ~~is~~ an active axle differential.

32. (Currently Amended) A roll stability control system for a vehicle as recited in claim 29, wherein ~~[[the]]~~ said rollover sensor comprises a ~~roll-rate~~ roll-rate sensor.

33. (Currently Amended) A roll stability control system for a vehicle as recited in claim ~~[[32]]~~ 29, wherein ~~[[the]]~~ said rollover sensor comprises a ~~roll-rate~~ roll-rate sensor and a ~~lateral acceleration~~ lateral-acceleration sensor.

34. (Currently Amended) A roll stability control system for a vehicle as recited in claim ~~[[32]]~~ 29, wherein ~~[[the]]~~ said rollover sensor comprises a ~~roll-rate~~ roll-rate sensor, a ~~lateral acceleration~~ lateral-acceleration sensor, and a ~~vehicle-speed~~ vehicle-speed sensor.

35. (Currently Amended) A roll stability control system for a vehicle as recited in claim ~~[[32]]~~ 29, wherein ~~[[the]]~~ said rollover sensor comprises ~~roll-rate~~ a roll-rate sensor, a ~~lateral acceleration~~ lateral-acceleration sensor, a ~~vehicle-speed~~ vehicle-speed sensor, and a ~~yaw-rate~~ yaw-rate sensor.